upshifting of chain **40** to sprocket **60** from an adjacent sprocket of cassette **110** during an upshift operation by a rear derailleur.

A conventional bicycle is typically easiest for a bicyclist to pedal uphill when the lowest gear ratio is used (i.e., the chain mechanically engages the chainring of the front crankset having the lowest teeth profile and the sprocket of the rear cassette having the highest teeth profile. Cassette **110** comprising axially rearmost sprocket **60** facilitates uphill pedaling since a lower gear ratio is available to a bicyclist using cassette **110** than the gear ratio that is available to a bicyclist using a conventional ten sprocket rear cassette, such as cassette **30**, since sprocket **60** has a teeth profile that is higher than any of the sprockets of a conventional ten sprocket cassette.

While sprocket **60** may be used with many conventional 1×10 and 2×10 drivetrains, in some embodiments, sprocket **60** may be used with a 1×10 drivetrain to optimize the gear ratio available to a bicyclist while eliminating the front derailleur, a front chainring, a shift control device, and the weight (and mechanical problems) associated with these extra components.

While a number of exemplary aspects and embodiments have been discussed above, those of skill in the art will recognize certain modifications, permutations, additions and sub-combinations thereof. It is therefore intended that the following appended claims and claims hereafter introduced are interpreted to include all such modifications, permutations, additions and sub-combinations as are within their true spirit and scope.

What is claimed is:

1. A bicycle sprocket for use with a multi-gear rear cassette, the sprocket comprising:

a chain engaging portion having a generally annular shape about a central axis, a radially outward edge of the chain engaging portion comprising a plurality of circumferentially spaced and radially outwardly extending teeth for mechanical engagement with a bicycle chain;

a mounting portion having a generally annular shape about the central axis, a radially inward edge of the mounting portion defining an aperture shaped to receive therein a freehub body and a radially outward edge of the mounting portion radially spaced apart from a radially inward edge of the chain engaging portion;

a plurality of support arms, integrally formed with the chain engaging portion and with the mounting portion, extending radially outwardly from the radially outward edge of the mounting portion to the radially inward edge of the chain engaging portion; and

a plurality of space maintaining protrusions, each space maintaining protrusion integrally formed with and extending axially forwardly from an axially forward surface of a corresponding support arm.

2. The bicycle sprocket according to claim **1**, wherein the support arms are circumferentially spaced apart from one another about the radially outward edge of the mounting portion.

3. The bicycle sprocket according to claim **1**, wherein the support arms are circumferentially spaced apart from one another about the radially inward edge of the chain engaging portion.

4. The bicycle sprocket according to claim **1**, wherein each support arm comprises a radially inward arm portion and a plurality of radially outward arm portions, the radially inward arm portion extending radially outwardly from the radially outward edge of the mounting portion and the plurality of radially outward arm portions extending radially outwardly from a radially outward edge of the radially inward arm portion to the radially inward edge of the chain engaging portion.

5. The bicycle sprocket according to claim **4**, wherein each space maintaining protrusion extends axially forwardly from an axially forward surface of a corresponding radially outward arm portion and is integrally formed therewith.

6. The bicycle sprocket according to claim **1**, wherein an axially forward surface of the mounting portion and an axially forward surface of each space maintaining protrusion extend further axially forwardly than an axially forward surface of the chain engaging portion.

7. The bicycle sprocket according to claim **6**, wherein the axially forward surface of the mounting portion extends further axially forwardly than the axially forward surface of each space maintaining protrusion.

8. The bicycle sprocket according to claim **1**, wherein the radially inward edge of the mounting portion comprises a plurality of circumferentially spaced grooves mateably engageable with a plurality of splines circumferentially spaced about the freehub body.

9. The bicycle sprocket according to claim **1**, wherein the chain engaging portion comprises a plurality of circumferentially spaced, axial recesses shaped for upshifting a bicycle chain to the rear bicycle sprocket from an adjacent sprocket of the rear cassette.

10. The bicycle sprocket according to claim **1**, wherein the sprocket is constructed from a metallic material.

11. A bicycle multi-gear rear cassette having a plurality of sprockets coaxially mounted to a freehub body, wherein the plurality of sprockets includes an axially rearmost sprocket, the axially rearmost sprocket comprising:

a chain engaging portion having a generally annular shape about a central axis, a radially outward edge of the chain engaging portion comprising a plurality of circumferentially spaced and radially outwardly extending teeth for mechanical engagement with a bicycle chain;

a mounting portion having a generally annular shape about the central axis, a radially inward edge of the mounting portion defining an aperture shaped to receive therein a freehub body and a radially outward edge of the mounting portion radially spaced apart from a radially inward edge of the chain engaging portion;

a plurality of support arms, integrally formed with the chain engaging portion and with the mounting portion, extending radially outwardly from the radially outward edge of the mounting portion to the radially inward edge of the chain engaging portion; and

a plurality of space maintaining protrusions, each space maintaining protrusion integrally formed with and extending axially forwardly from an axially forward surface of a corresponding support arm.

12. The multi-gear rear cassette according to claim **11**, wherein each support arm comprises a radially inward arm portion and a plurality of radially outward arm portions, the radially inward arm portion extending radially outwardly from the radially outward edge of the mounting portion and the plurality of radially outward arm portions extending radially outwardly from a radially outward edge of the radially inward arm portion to the radially inward edge of the chain engaging portion.

13. The multi-gear rear cassette according to claim **12**, wherein each space maintaining protrusion extends axially forwardly from an axially forward surface of a corresponding radially outward arm portion and is integrally formed therewith.